LVD TEST REPORT

For

LED TUBE

Model: T10, T8, T5

Reference No.: CE10-LIE040101S

Issued by: Shenzhen EBO Testing Center

Lab location: Yihua Building, Shennan Road, Futian District, Shenzhen, 518040, P. R. China

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LVD REPORT

per

EN 60598-1:2004+A1:2006

Luminaires – Part 1: General requirements and tests

EN 60598-2-1:1989

Luminaires , Part 2: particular requirements Section one – Fixed general purpose luminaires

Administrative Data:	
Report Reference No.	CE10- LIE040101S
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Approved by (name+signature)	**Kevin Yu**
Date of issue.....	2010-04-01
Testing Laboratory	Shenzhen EBO Testing Center
Address	Yihua Building, Shennan Road, Futian District, Shenzhen, 518040, P. R. China
Testing location/ procedure.....	The same as above
Testing location/ address	The same as above
Applicant's name ..... :	Shenzhen Saiju Electronic Co., Ltd.
Address	2nd. Xianshun Industrial Park, Gushu, Xixiang, Bao'an, Shenzhen, Guangdong, China.
Test specification:	
Standard	EN 60598-1:2004+A1:2006; EN60598-2-1:1989
Test procedure	CE-LVD
Non-standard test method….:	N/A
Test Report Form No.	EN60598-2-1
Test item description..... :	LED TUBE
Trade Mark	Saiju
Manufacturer	Shenzhen Saiju Electronic Co., Ltd.
Model/Type reference.....	T10, T8, T5

General product information:

85~265V ~ 50~60Hz

Test case does not apply to the test object : N(.A.) Test item does meet the requirement .....: P(ass) Test item does not meet the requirement : F(ail)
Testing Date of receipt of test item ..... : 2010-03-16 Date(s) of performance of test .... : 2010-03-16 to 2010-04-01
General remarks This report shall not be reproduced except in full without the written approval of the testing laboratory. The test results presented in this report relate only to the item tested. "(see remark #)" refers to a remark appended to the report. "(see Annex #)" refers to an annex appended to the report. Throughout this report a comma is used as the decimal separator.

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	

1.2 (0)	GENERAL TEST REQUIREMENTS		**P**
1.2 (0.1)	Information for luminaire design considered		P
1.2 (0.3)	More sections applicable ..... :		P

1.4 (2)	CLASSIFICATION		**P**
1.4 (2.2)	Type of protection ..... :	Class Ⅰ	P
1.4 (2.3)	Degree of protection ..... :	IP65	P
1.4 (2.4)	Luminaire only suitable for non-combustible surfaces ..... :		N
	Luminaire suitable for normally flammable surfaces ..... :		N
	Luminaire suitable to be covered by insulating material . :		P
1.4 (2.5)	Luminaire for normal use ..... :		P
	Luminaire for rough service ..... :		N

1.5 (3)	MARKING		**P**
1.5 (3.2)	Mandatory markings	Refer to marking plate	P
	Position of the marking		P
	Format of symbols/text		P
1.5 (3.3)	Additional information	Refer to marking plate	P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N
1.5 (3.3.2)	Nominal frequency in Hz	50Hz	P
1.5 (3.3.3)	Operating temperature	+25℃	P
1.5 (3.3.4)	Symbol or warning notice		N
1.5 (3.3.5)	Wiring diagram	Refer to user manual	P
1.5 (3.3.6)	Special conditions	Not applicable	N
1.5 (3.3.7)	Metal halide lamp luminaire – warning	No such lamp	N
1.5 (3.3.8)	Limitation for semi-luminaires	No semi-luminaire	N
1.5 (3.3.9)	Power factor and supply current	Refer to marking	P
1.5 (3.3.10)	Suitability for use indoors		P
1.5 (3.3.11)	Luminaires with remote control	No such structure	N
1.5 (3.3.12)	Clip-mounted luminaire – warning	Fixed luminaries	N
1.5 (3.3.13)	Specifications of protective shields	No this component	N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
1.5 (3.3.14)	Symbol for nature of supply	~, Refer to marking	P
1.5 (3.3.15)	Rated current of socket outlet	No socket outlet	P
1.5 (3.3.16)	Rough service luminaire	No such luminaries	N
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
1.5 (3.3.18)	Non-ordinary luminaries with PVC cable	Not applicable	N
1.5 (3.3.101)	Adequate warning on the package (EN)		P
1.5 (3.4)	Test with water	See appended table 1.5	P
	Test with hexane		P
	Legible after test		P
	Label attached		P
1.6 (4)	CONSTRUCTION		**P**
1.6 (4.2)	Components replaceable without difficulty		N
1.6 (4.3)	Wire ways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N
1.6 (4.4.1)	Integral lampholder	Approved lampholder used	N
1.6 (4.4.2)	Wiring connection		N
1.6 (4.4.3)	Lampholder for end-to-end mounting	No such structure	N
1.6 (4.4.4)	Positioning		P
	- pressure test (N)	No applicable	N
	- bending test (Nm)	1.0Nm	P
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact		N
1.6 (4.4.7)	Parts in rough service luminaires resistance to tracking	No rough service	N
1.6 (4.4.8)	Lamp connectors		N
1.6 (4.4.9)	Caps and bases correctly used		P
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II	No such component	N
	Starter holder class II construction		N
1.6 (4.6)	Terminal blocks		P
	Tails	Approved terminals blocks used	P

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	Unsecured blocks		P
1.6 (4.7)	Terminals and supply connections		P
1.6 (4.7.1)	Contact to metal parts		P
1.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
1.6 (4.7.3)	Terminals for supply conductors		P
1.6 (4.7.3.1)	Welded connections:		N
	- stranded or solid conductor	Not such connection mode	N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- ageing test according to 15.9.2.3 and 15.9.2.4		N
1.6 (4.7.4)	Terminals other than supply connection	No such terminals	N
1.6 (4.7.5)	Heat-resistant wiring/sleeves	No such structure	N
1.6 (4.7.6)	Multi-pole plug	No plug used	N
	- test at 30 N		N
1.6 (4.8)	Switches:		N
	- adequate rating	No switch used	N
	- adequate fixing		N
	- polarized supply		N
	- compliance with 61058-1 for electronic switches		N
1.6 (4.9)	Insulating lining and sleeves		P
1.6 (4.9.1)	Retainment	Used fiber-glass tube and thermal-shrinkable tube	P
	Method of fixing ..... :	Suitably length and shrink fix	P
1.6 (4.9.2)	Insulated linings and sleeves	UL approved fiber-glass tube and thermal-shrinkable tube used	P
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C) ..... :		N
1.6 (4.10)	Insulation of Class II luminaires		N
1.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation	Class Ⅰ luminaire	N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	Safe installation fixed luminaires		N
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
1.6 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
1.6 (4.10.3)	Retainment of insulation:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
1.6 (4.11)	Electrical connections		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
	- at least two self-tapping screws		N
1.6 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
1.6 (4.11.4)	Material of current-carrying parts	Copper	P
1.6 (4.11.5)	No contact to wood		P
1.6 (4.11.6)	Electro-mechanical contact systems		N
1.6 (4.12)	Mechanical connections and glands		N
1.6 (4.12.1)	Screws not made of soft metal		N
	Screws of insulating material		N
	Torque test: torque (Nm); part..... :		N
	Torque test: torque (Nm); part..... :		N
	Torque test: torque (Nm); part..... :		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal	All screws are both screwed into metal	N
1.6 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm) ..... :	5Nm	P
	- lampholder; torque (Nm).....	1.2Nm	P
	- push-button switches; torque 0,8 Nm		N
1.6 (4.12.5)	Screwed glands; force (N)	No such construction	N
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)		N
	- other parts; energy (Nm).....	0.35Nm	P
	1) live parts	Cannot be touched	P
	2) linings		P
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger		P
1.6 (4.13.4)	Rough service luminaires		N
	- IP54 or higher	Not such luminaire	N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
1.6 (4.13.6)	Tumbling barrel	Not applicable	N
1.6 (4.14)	Suspensions and adjusting devices		P
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm ..... :		P
	C) bracket arm; bending moment (Nm)..... :	1.0Nm , 1min	P
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	metal rod. Diameter (mm) ..... :		N
	Fixed luminaire or independent control gear without fixing devices		P
1.6 (4.14.2)	Load to flexible cables		P
	Mass (kg)..... :	0.28kg	P
	Stress in conductors (N/mm²) ..... :	No tension will not applied to the conductors	N
	Semi-luminaires – mass (kg) ..... :	Not applicable	N
	Semi-luminaires – bending moment (Nm)..... :		N
1.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles ..... :	Not applicable	N
	- strands broken		N
	- electric strength test afterwards		N
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	Use fiber glass tube to prevent strain	P
1.6 (4.14.5)	Guide pulleys	Not applicable	N
1.6 (4.14.6)	Strain on socket-outlets		N
1.6 (4.15)	Flammable materials:		P
	- glow-wire test 650 °C	See appended table 22.15	P
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		P
	- screen dimensions		P
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction	No lamp control gear	N
	b) temperature sensing control		N
	c) surface temperature		N
1.6 (4.16)	Luminaires marked with F-symbol		P
	No lamp control gear	See clause 12	N
1.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm	No lamp control gear	N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	- spacing 10 mm		N
1.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear	No such component	N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
1.6 (4.16.3)	"F" curve measured	See appended table 12.5	P
1.6 (4.17)	Drain holes		N
	Clearance at least 5 mm	No drain holes	N
1.6 (4.18)	Resistance to corrosion:		N
1.6 (4.18.1)	- rust-resistance	IP65	N
1.6 (4.18.2)	- season cracking in copper		N
1.6 (4.18.3)	- corrosion of aluminium	No such material	N
1.6 (4.19)	Ignitors compatible with ballast	No such component	N
1.6 (4.20)	Rough service vibration	No this luminaires	N
1.6 (4.21)	Protective shield:		N
1.6 (4.21.1)	Shield fitted	No tungsten halogen lamps	N
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
1.6 (4.21.3)	No direct path		N
1.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment		N
1.6 (4.22)	Attachments to lamps		P
1.6 (4.23)	Semi-luminaires comply class II		N
1.6 (4.24)	UV radiation, metal halide lamps		P
1.6 (4.25)	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection:		N
1.6 (4.26.1)	Uninsulated accessible SELV parts	No uninsulated accessible SELV parts	N
1.6 (4.26.2)	Short-circuit test		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
1.6 (4.26.3)	Test chain according to Figure 29		N

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		**P**
	Working voltage (V)	230V	P
	Voltage form	AC	P
	PTI	>600	P
	Rated pulse voltage (kV)		P
	1) Current-carrying parts of different polarity: cr (mm); cl (mm).....	12.2mm	P
	2) Current-carrying parts and accessible parts: cr (mm); cl (mm).....	Basic insulation and grounding protective in structure	P
	3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm).....		N
	4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)		N
	5) Not used		N
	6) Current-carrying parts and supporting surface: cr (mm); cl (mm).....	Double insulation in structure	P

1.8 (7)	PROVISION FOR EARTHING		N
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		N
	Metal parts in contact with supporting surface		N
	Resistance < 0,5 Ω	See appended table 7.2.3	N
	Two self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a groove		N
	Earth makes contact first	No connecter used	N
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
1.8 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
1.8 (7.2.5)	Earth terminal integral part of connector socket	No connecter socket used	N
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		N
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
1.8 (7.2.8)	Material of earth terminal	Copper	N
	Contact surface bare metal		N
1.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
1.8 (7.2.11)	Earthing core coloured green-yellow	Green-yellow wire used	N
	Length of earth conductor		N
1.9 (14)	SCREW TERMINALS		**N**
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 2)	N
1.9 (15)	SCREWLESS TERMINALS		**P**
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 3)	P
1.10 (5)	EXTERNAL AND INTERNAL WIRING		**P**
1.10 (5.2)	Supply connection and external wiring		N
1.10 (5.2.1)	Means of connection ..... :	Terminals	N
	Connecting leads (EN)		N
	- without a means for connection to the supply	No used connecter leads	N
	- terminal block specified		N
	- relevant information provided		N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N
1.10 (5.2.2)	Type of cable ..... :		N
	Cables equal to HD21 S2 or HD22 S2 (EN)		N
	Nominal cross-sectional area (mm²) ..... :		N
1.10 (5.2.3)	Type of attachment, X, Y or Z		N
1.10 (5.2.5)	Type Z not connected to screws		N
1.10 (5.2.6)	Cable entries:		P
	- suitable for introduction	Wire bushing used	P

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed	Not Class Ⅱ equipment	N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
1.10 (5.2.9)	Locking of screwed bushings		N
1.10 (5.2.10)	Cord anchorage:		N
	- covering protected from abrasion		N
	- clear how to be effective		N
	- no mechanical or thermal stress		N
	- no tying of cables into knots etc.		N
	- insulating material or lining		N
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed	Type Y attachments	N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
1.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe	See appended table 5.2	P
	- pull test: 25 times; pull (N) ..... :		P
	- torque test: torque (Nm)..... :		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	- no damage of cable or cord		P
1.10 (5.2.11)	External wiring passing into luminaire		P
1.10 (5.2.12)	Looping-in terminals	No such construct	N
1.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
1.10 (5.2.14)	Mains plug same protection	No used plug	N
	Class III luminaire plug		N
1.10 (5.2.15)	Colour code low voltage (EN)	No such equipment	N
1.10 (5.2.16)	Appliance inlets (IEC 60320)	No used inlet	N
	Appliance couplers of class II type		N
1.10 (5.2.17)	No standardized interconnecting cables properly assembled	No such components	N
1.10 (5.2.18)	Used plug in accordance with		N
	- IEC 60083	No plug used	N
	- other standard		N
1.10 (5.3)	Internal wiring		P
1.10 (5.3.1)	Internal wiring of suitable size and type	0.75mm^2	P
	Through wiring		N
	- not delivered/ mounting instruction	No through wiring	N
	- factory assembled		N
	- socket outlet loaded (A) ..... :		N
	- temperatures ..... :		N
	Green-yellow for earth only		N
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²) ..... :	0.75mm^2	P
	Insulation thickness	0.6mm	P
	Extra insulation added where necessary		P
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N
	Adequate cross-sectional area and insulation thickness		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
1.10 (5.3.1.3)	Double or reinforced insulation for class II	Class I equipment	N
1.10 (5.3.1.4)	Conductors without insulation		N
1.10 (5.3.1.5)	SELV current-carrying parts	No SELV parts	N
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		P
	Telescopic tubes etc.		P
	No twisting over 360°		P
1.10 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
1.10 (5.3.4)	Joints and junctions effectively insulated	No such structure	N
1.10 (5.3.5)	Strain on internal wiring	Not applicable	N
1.10 (5.3.6)	Wire carriers	No such luminaire	N
1.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		**P**
1.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Protection in any position		P
	Double-ended tungsten filament lamp	No such lamp	N
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp	No such lamp	N
	Relevant warning according to 3.2.18 fitted to the luminaire		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	

1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position	No portable luminaire	N
1.11 (8.2.3)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement	Class I luminaire	N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
	Class I luminaire with BC lampholder		N
1.11 (8.2.4)	Portable luminaire:		N
	- protection independent of supporting surface	Not portable luminaire	N
	- terminal block completely covered		N
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF	No capacitors used	N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

1.12 (12)	ENDURANCE TEST AND THERMAL TEST		**P**
1.12 (12.3)	Endurance test:		P
	- mounting-position	Normal using	P
	- test temperature (°C)	36℃	P
	- total duration (h).....	240H	P
	- supply voltage: Un factor; calculated voltage (V)	237V	P
	- lamp used	Filament lamp	P
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable	See appended table 12.3.2	P
	- luminaire not unsafe		P
	- no damage to track system		P
	- marking legible		P

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	See appended table 12.4	P
1.12 (12.5)	Thermal test (abnormal operation)	Fixed non-adjustable filament lamp luminaires	N
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)..... :	No lamp control gear	N
	- case of abnormal conditions		N
	- electronic lamp control gear		N
	- measured winding temperature (°C) at 1,1 Un .		N
	- measured mounting surface temperature (°C) at 1,1 Un		N
	- calculated mounting surface temperature (°C):		N
	- track-mounted luminaires		N
1.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions		N
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C)		N
	- track-mounted luminaires		N
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
1.12 (12.7.1)	Through wiring or lopping-in wiring loaded by a current of (A).....	No lamp control gear	N
	- case of abnormal conditions		N
	- measured winding temperature (°C) at 1,1 Un .		N
	- measured temperature of fixing point/ exposed part (°C) at 1,1 Un		N
	- calculated temperature of fixing point/ exposed part (°C).....		N
1.12 (12.7.2)	Temperature sensing control		N
	- thermal link		N
	- manual reset cut-out		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	- auto reset cut-out		N
	- measured temperature of fixing point/ exposed part (°C)		N

1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		**P**
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP 20	P
	- mounting position during test.....	Up	P
	- fixing screws tightened; torque (Nm)	0.3Nm	P
	- tests according to clauses		P
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N
	c) no trace of water on current-carrying parts or where it could become a hazard		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		N
	f) no contact with live parts (IP 2X)		P
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP3X and IP4X)		N
1.13 (9.3)	Humidity test 48 h		P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		**P**
1.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mmØ		P
	Insulation resistance (MΩ):		P
	SELV:		N
	- between current-carrying parts of different polarity.....		N
	- between current-carrying parts and mounting surface		N
	- between current-carrying parts and metal parts of the luminaire.....		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	

	Other than SELV:		P
	- between live parts of different polarity.....	See appended table 10.2.1	P
	- between live parts and mounting surface.....		P
	- between live parts and metal parts.....		P
	- between live parts of different polarity through action of a switch.....		N
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		P
	SELV:		N
	- between current-carrying parts of different polarity.....		N
	- between current-carrying parts and mounting surface		N
	- between current-carrying parts and metal parts of the luminaire.....		N
	Other than SELV:		P
	- between live parts of different polarity.....	See appended table 10.2.2	P
	- between live parts and mounting surface.....		P
	- between live parts and metal parts.....		P
	- between live parts of different polarity through action of a switch.....		N
1.14 (10.3.1)	Leakage current (mA).....	See appended table 10.3	P

1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		**P**
1.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C).....	See appended table 13.2.1	P
	- part tested; temperature (°C).....		P
1.15 (13.3.1)	Needle flame test (10 s):		P
	- part tested	See appended table 13.3.2	P
	- part tested		P
1.15 (13.3.2)	Glow wire test (650 °C):		P

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	
	- part tested	See appended table 13.3.2	P
	- part tested		P
1.15 (13.4.1)	Tracking test: part tested		N

IEC 60598-2-1 and/or EN 60598-2-1			
Clause	Requirement + Test	Result – Remark	

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		**P**
(2.2)	Class 0 not accepted	EUT not Class 0	P
(3.3)	DK: power supply cord with label		N
	IT: warning label on Class 0 luminaire		N
(4.5.1)	DK: socket-outlets		N
(4.5.1)	FR: socket-outlets		N
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		**N**
(13.3)	DK: Needle flame test during 30 s		N
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N
(13.3.2)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public or 960°C for luminaires in emergency exits		N

Critical component list					
object/part No.	manufac-turer/trademark	type/model	technical data	standard	mark(s) of conformity

	ANNEX 2: screw terminals (part of the luminaire)	**N**

(14)	SCREW TERMINALS		**N**
(14.2)	Type of terminal ..... :	Pillar terminal	N
	Rated current (A) ..... :	Max 4A	N
(14.3.2.1)	One or more conductors	One conductors	N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size	0	N
	Cross-sectional area (mm²) ..... :	0.75mm^2	N
(14.3.3)	Conductor space (mm) ..... :	1.5mm	N
(14.4)	Mechanical tests		P
(14.4.1)	Minimum distance		N
(14.4.2)	Cannot slip out		N
(14.4.3)	Special preparation		N
(14.4.4)	Nominal diameter of thread (metric ISO thread) :		N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm) ..... :	2.88mm	N
	Torque (Nm)..... :	0.5Nm	N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N)..... :	30N	N
(14.4.8)	Without undue damage		N

	ANNEX 3: screwless terminals (part of the luminaire)	**N**

(15)	SCREWLESS TERMINALS		**N**
(15.2)	Type of terminal..... :		N
	Rated current (A)..... :		N
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N
	Insertion force not exceeding 50 N		N
(15.5.2)	Permanent connections: pull-off test (20 N)		N
(15.6)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples)..... :		N
	Voltage drop of two inseparable joints		N
	Number of cycles ..... :		N
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples) ..... :		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples) ..... :		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) ..... :		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) ..... :		N
(15.7)	Terminals external wiring		N
	Terminal size and rating		N

(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:									N
	Pull test pin or tab terminals or welded connections (4 samples); pull (N) .....:									N
(15.9)	Contact resistance test									N
	Voltage drop (mV) after 1 h									N
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									---
	Voltage drop after 10th alt. 25th cycle									---
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									---
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									---
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									---
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

3.4	Table: marking	P

Requirement	Comment
Legible?	**Yes** / **No**
Marking easily removable?	**Yes** / **No**
Curling?	**Yes** / **No**

5.2	TABLE: Protection of supply cords(strain, twisting, abrasion)		P
Pull force (N)	**Torque (Nm)**	**Displacement (mm)**	**Max displacement (mm)**
60	0.25	**1.2**	**2**

7.2.3 Table : protective earthing resistance P

Test current 10 A

Between	Result (mΩ)	Limited (mΩ)
Power supply grounding wire to grounding pin	213	500

12.3.2 TABLE: Endurance test P

Test cycles	Test status	Test voltage	Test time	Test status	Test voltage	Test time	Result
1	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
2	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
3	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage

4	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
5	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
6	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
7	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
8	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
9	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage
10	Normal mode	237V	21Hr	Disconnect supply	0V	3Hr	Work normally, not any damage

12	TABLE: Heating test under normal/abnormal operation conditions, thermocouples					P
	Condition	(12.4) 1.05 times rated power				Remark
	test voltage (V).....	237V				---
	t1 (°C)	24.6				---
	t2 (°C)	26.4				---
temperature rise dT of part/at:		DT (°C)				Limited T (°C)
Enclosure 01		32.7				---
Enclosure (near lamp)		36.8				---

Internal wire near Terminals	46.3				90
Internal wire near connector	30.9				90
Mounting surface 01	32.8				90
Mounting surface (lamp irradiation)	31.5				90
Terminals	31.4				95
Remark:					

10.2.1	TABLE: Insulation strength test		**P**
Test points		Measured insulation	Limited insulation resistance
Between	To		
Live	Enclosure	>2	2MΩ
Neutral	Enclosure	>2	2MΩ
Live	Neutral	>2	2MΩ

10.2.2	TABLE: Electric strength after leakage	**P**
test voltage applied between:	**Test voltage** (V)	Breakdown (Yes/No)
L/N and enclosure(wrapped foil)	1480	No breakdown
Live and Neutral	1480	No breakdown
Grounding and L/N	1480	No breakdown

10.3	TABLE: leakage current		**P**
	Testing voltage:	Rated voltage	**--**
leakage current between:	**Leakage** (mA) (measured)		**Max Leakage(mA)**
Live and enclosure	0.055		0.5

Neutral and enclosure	0.062	0.5

22.15(13.2.1)	TABLE: Ball pressure test			P
Test specimen	**temperature from 11. (°C)**	**test temperature (°C)**	**impression diameter (∅mm)**	**Limited diameter (∅mm)**
Terminals	31.4	125	0.01	2.0

22.15(13.3.2)	TABLE: Ignition of non metallic material		**P**
specimen	**Test temperature**	**Test time (min)**	**Result**
Terminals	720	1	No burning

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*** End of Report ***